User manual
ALFA(NET) 77 BAR
(4-20mA)

Pressostat with temperature Read out and control based on several refrigerants.

VDH doc. 053105 **Version: v1.1** **Date: 24-03-2010**
Software: ALFA(NET) 57/67/77 4-20 File: Do053105.wpd Range: -1,0/+99,9 BAR per 0,1 BAR

* Description.

The **ALFA(NET) 77** is a Pressostat with three relay functions and the possibility to control on pressure or on temperature from the several refrigerants. The **ALFA*NET* 77** has a RS 485 network connection so it can be read out control and adjusted on the PC when you connect it to our **ALFANET PC-INTERFACE**.

* Installation.

On the connection diagram is shown how to connect the pressure sensor, power supply and relays. As soon as you connect the **ALFA(NET) 77** to the power supply the self test will be started automatically. After this test the measured pressure or temperature will appear in the display.

* Control.

The **ALFA(NET) 77** Pressostat can be controlled by four push buttons on the front:

SET	- view / change the setpoints.
UP	- increase a setpoint.
DOWN	- decrease a setpoint.
BAR	- hidden button under the BAR text.

* Display and control on temperature

The **ALFA(NET) 77** Pressostat normally controls on atmospherical pressure (not absolute pressure). If you have selected a refrigerant (parameter P08) , the pressostat can also display and control on temperature, see settings of parameter P09. Where it's possible to select reading per 0,1˚C or per 1˚C . To indicate temperature reading in stead of the pressure reading, the most right decimal point is on.('**˚C**'). When switching from pressure to temperature, some parameters **("#")** will be transferred in the other value. It is advisable to check all these parameters.

* Viewing and changing the setpoint.

By pressing the **SET** button the setpoint appears in the display. At the same time the most right decimal point will blink, indicating the setpoint is being displayed. Release the **SET** button. Now push the **SET** key again together with the **UP** or **DOWN** keys to change the setpoint. A few seconds after releasing the keys the measured temperature shows again in the display.

* Status of the Relays.

By pushing the hidden **BAR** key, the display shows the status of the relays. Each display segment shows the status of the relay output, showing 0=off and 1=on. The code 110 means relay 1(out.1) and 2 (out.2) are on and relay 3 (out.3) is off.

* Pressure sensor adjustment.

The pressure sensor can be adjusted by using the Offset pressure parameter 05.
Indicates the Sensor e.g. 0,2 BAR to much, than the Sensor Offset has to be decreased with 0,2 BAR.

* Error messages.

In the display of the **ALFANET 77** the following errors can appear:

LO - Minimum alarm.
HI - Maximum alarm.
EE - Settings are lost.
Solution EE: - Reprogramm the settings.

* Alarm function.

As a failure or alarm occurs an error message is shown in the display and the buzzer (as mounted) will make noise. The **ALFA(NET) 77** remembers it's error message, although it is already solved (as parameter P36 is default value '0').
The error message is resettable with the **SET** key (only when parameter P37 is set on 1). If after pressing the **SET** key (=Alarm reset) and the alarm is still not solved, the **ALFA(NET) 77** displays the pressure (temperature) and the error code alternated. Is the alarm solved, the error message disappears and the actual pressure (temperature) is displayed again.
Through parameter 35 the alarm relay function can be changed from (default on watch alarm) to control alarm. At control alarm the relay will be activated when an alarm occurs, at watch alarm the relay is normally active and in case of alarm the relay falls off (also in case of power failure).
Through parameter P30 you can select the type of alarm: none, absolute or relative alarm. At the function relative alarm, the minimum and maximum alarm settings will be taken relative from the control setpoint.

* Technical details.

Type	: ALFA(NET) 77 Pressostat
Range	: -1,0/+99,9 BAR, readout per 0,1 BAR (As a refrigerant is chosen the temperature can also be displayed, Within a range of -60,0 until +60,0˚C.)
Supply	: 12 Vac/16,5Vdc (-5/+10%)
Readout	: 3-digit 7-segments display
Relays	: The three relays have one common; Ry-1 Out.1 SPST (NO) 250V/8A (cos φ=1) Ry-2 Out.2 SPST (NO) 250V/8A (cos φ=1) Ry-3 Out.3 (Alarm) SPDT (NO,NC) 250V/8A (cos φ=1)
Communication	: RS 485 (2x Twisted-pair shielded cable min. 0,5mm^2)
Control	: Thru push buttons on the front.
Front	: Polycarbonate IP65
Pressure sensor	: PX25, PX75, PX77 (Supply 12Vdc, Signal input 4-20mA). Only relative pressure sensors (Not for absolute pressure sensors) Pressure sensor who need a higher voltage supply than 12Vdc, use external supply
Dimensions	: 35 x 77 x 71,5mm (hwd)
Panel cutout	: 29 x 70mm (hw)
Accuracy	: ± 0,5 % of the range

- Provided with memory protection during power failure.
- Connection with screw terminals at the back side.
- Special versions on request available.

* Setting internal parameters.

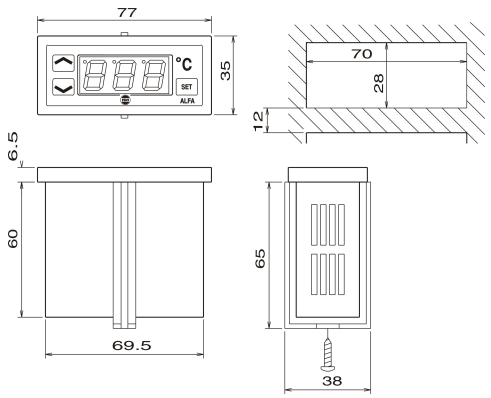
Next to the adjustment of the setpoint, internal settings can be made like differential, sensor-offset, setpoint range, refrigerants, read out settings, alarm settings and the functions of the thermostat.
Push the **DOWN** key for more than 10 seconds, to enter the 'Internal Programming Menu'. In the left display the upper- and lower-segment are blinking. Over the **UP** and **DOWN** keys the required parameter can be selected (see the table for the parameters).
If the required parameter is selected, the value can be read-out by pushing the **SET** key. Pushing the **UP** or **DOWN** key to change the value of this parameter.
If after 20 seconds no key is pushed, the **ALFA(NET) 77** changes to the normal operation mode.

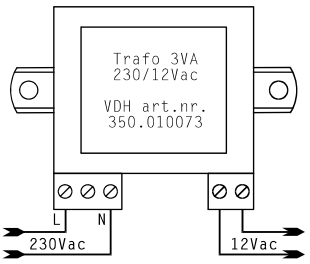
* Parameters ALFA(NET) 77.

Par.	Description Parameter	Range	Default
01	Function relay 1	1..3	1
02	Function relay 2	1..3	2
03	Function relay 3	1..3	3
	with: 1 = Pressure (temp.) increase 2 = Pressure (temp.) decrease 3 = Alarm		
05	Offset pressure sensor	-15.0..+15.0 Bar	0.0
06	Value pressure sensor at 4mA in	-1.0..+99.9 Bar	-1.0
07	Value pressure sensor at 20mA in	-1.0..+99.9 Bar	99.9
08	Refrigerants: 0 = none 6 = R407A(BP) 1 = R22 7 = R407C(DP) 2 = R134A 8 = R407C(BP) 3 = R404A(DP) 9 = R717(NH3) 4 = R404A(BP) 10 = R507 5 = R407A(DP) (DP=Dewpoint, BP=Bubblepoint)	0..10	0
09	Display and control 0 = Pressure Per 0,1 Bar 1 = Temp. Per 0,1 °C 2 = Temp. Per 1 °C	0..2	0
10 #	Switching differential relay 1	0.1..15 Bar (°C)	0.5
11 #	Switching offset relay 1	-15..+15 Bar (°C)	0
12 #	Switching differential relay 2	0.1..15 Bar (°C)	0.5
13 #	Switching offset relay 2	-15..+15 Bar (°C)	0
14 #	Switching differential relay 3	0.1..15 Bar (°C)	0.5
15 #	Switching offset relay 3	-15..+15 Bar (°C)	0
20 #	Minimum setpoint *	-1.0..99.9 Bar (°C)	-1.0
21 #	Maximum setpoint *	-1.0..99.9 Bar (°C)	99.9
30	Alarm mode; 0 = None 1 = Absolute 2 = Relative	0..2	1
31 #	Minimum alarm setpoint *	-99..+99.9 Bar (°C)	-1.0
32 #	Maximum alarm setpoint *	-99..+99.9 Bar (°C)	99.9
33	Time delay minimum alarm	0..99 Minutes	0
34	Time delay maximum alarm	0..99 Minutes	0
35	Function alarm relay 0 = Watch alarm 1 = Control alarm	0..1	0
36	Reset alarm relay at recovering alarm	0=No, 1=Yes	0
37	Reset alarm relay by manual reset	0=No, 1=Yes	0
40	Control delay after power-failure	0..99 Minutes	0
52	Time correction (at real time clock)	-99..+99 Hours/Year	0
90	Network number (at ALFANET 77 only)	1..255	1
95	Software version	0..255	-
96	Production year	00..99	-
97	Production week	1..52	-
98	Serial number (x1000)	0..255	-
99	Serial number (units)	0..999	-

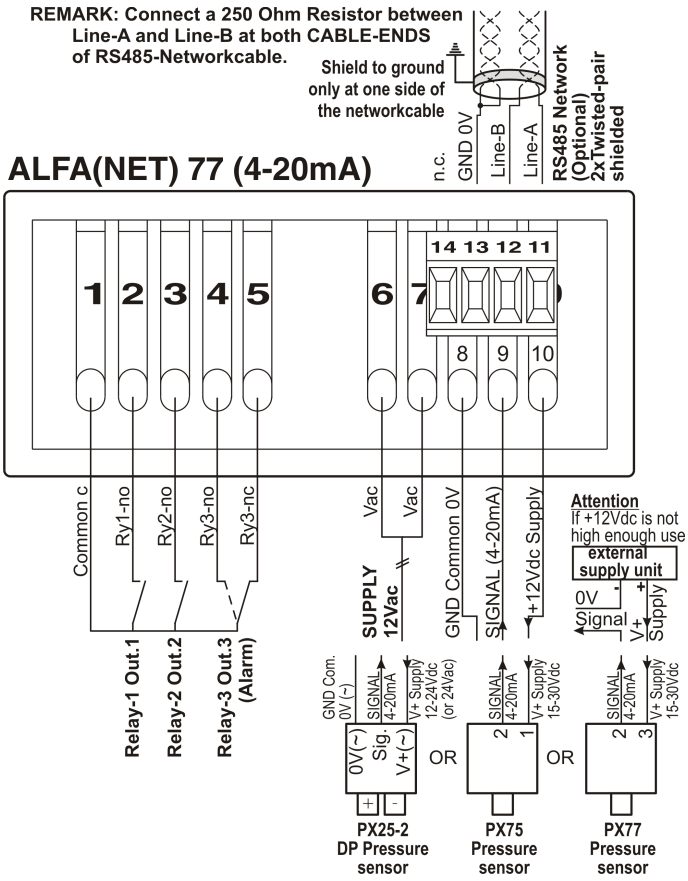
*) Changes when switched from Bar/°C of switching to another refrigerant.
#) Value changes when switching from display (read-out)/Control on pressure or temperature.
Check these parameters after switching over!!

* Dimensions.

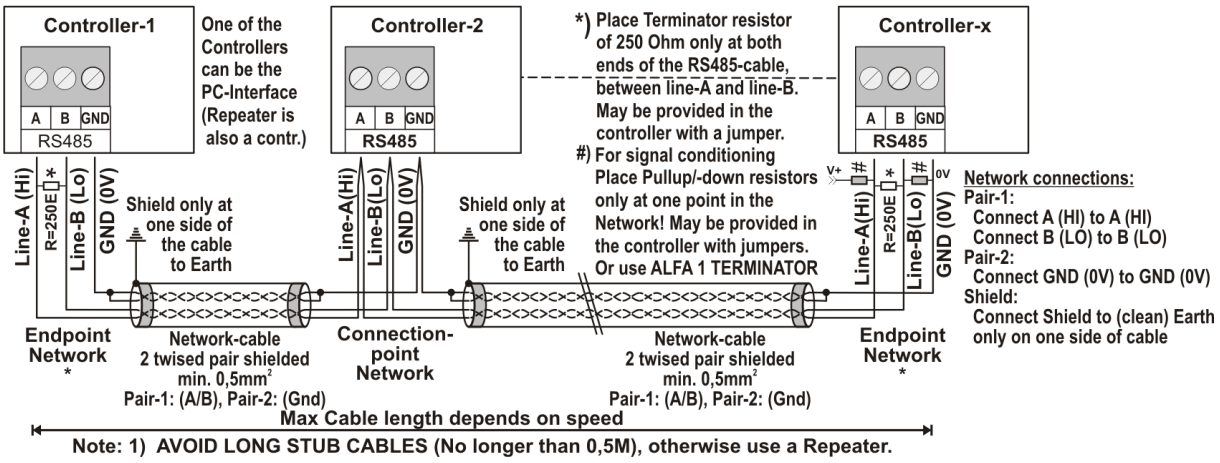




* Connections.



RS 485 NETWORK CONNECTIONS 2-twisted pair shielded cable:


Controller-1
One of the Controllers can be the PC-Interface (Repeater is also a contr.)
A B GND
RS485
Controller-2
Controller-x
*) Place Terminator resistor of 250 Ohm only at both ends of the RS485-cable, between line-A and line-B. May be provided in the controller with a jumper.
#) For signal conditioning Place Pullup/-down resistors only at one point in the Network! May be provided in the controller with jumpers. Or use ALFA 1 TERMINATOR
Line-A (Hi)
R=250E
Line-B (Lo)
GND (0V)
Shield only at one side of the cable to Earth
Endpoint Network *
Network-cable 2 twised pair shielded min. 0,5mm²
Pair-1: (A/B), Pair-2: (Gnd)
Connection-point Network
Max Cable length depends on speed
Note: 1) AVOID LONG STUB CABLES (No longer than 0,5M), otherwise use a Repeater.
Network connections:
Pair-1:
Connect A (HI) to A (HI)
Connect B (LO) to B (LO)
Pair-2:
Connect GND (0V) to GND (0V)
Shield:
Connect Shield to (clean) Earth only on one side of cable

* Adresse.

VDH Products BV
Produktieweg 1
9301 ZS Roden
The Netherlands

Tel: +31 (0)50 - 30 28 900
Fax: +31 (0)50 - 30 28 980
Email: info@vdhproducts.nl
Internet: www.vdhproducts.nl